

## **ABSTRACT**

A power amplifier includes a transconductance stage and a modulation detection and bias determination module, and may include a cascode stage. The modulation detection and bias determination module operably couples to the transconductance stage and to the cascode stage when present and is operable to detect modulation characteristics of an signal operated upon by the transconductance stage. The modulation detection and bias determination module is also operable to controllably bias the transconductance stage and/or the cascode stage when present based upon detected modulation characteristics. The detected modulation characteristics are typically determined based upon a measured signal level, e.g., voltage level, current level, or power level, of the signal operated upon by the transconductance device. For non-constant envelope modulations, the signal level varies over time with the modulation envelope. The operational characteristics of the power amplifier, e.g., biasing condition(s), are therefore varied over time with the variation of the modulation.